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| 10/582,584 | 05/25/2007 | Noriyuki Suzuki | 062537 | 1777 |

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| EXAMINER | |
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| SALVITTI, MICHAEL A | |

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## ADVISORY ACTION

### *Response to Amendment*

The proposed amendments to claims 5, 6, 7 and 8 will be entered, as they correct minor informalities and do not alter the scope of the claims as they have been examined, and do simplify issues for appeal.

### *Response to Arguments*

The following remarks are addressed to the document entitled "Remarks" (pages 2-12) received April 13th, 2010.

Applicant's arguments with respect to:

**a)** the rejection of claims 1-3 and 5 under 35 U.S.C. § 103(a) to *Suzuki et al.* (WO 2001/1088035; English equivalent 2004/0024139 referenced) in view of *Sasaki et al.* (USPN 4,647,650); and

**b)** the rejection of claims 1-2 and 4-8 under 35 U.S.C. § 103(a) to *Suzuki et* al. (USPN 6,583,208) in view of *Sasaki et al.* (USPN 4,647,650);

have been fully considered but they are not found to be persuasive.

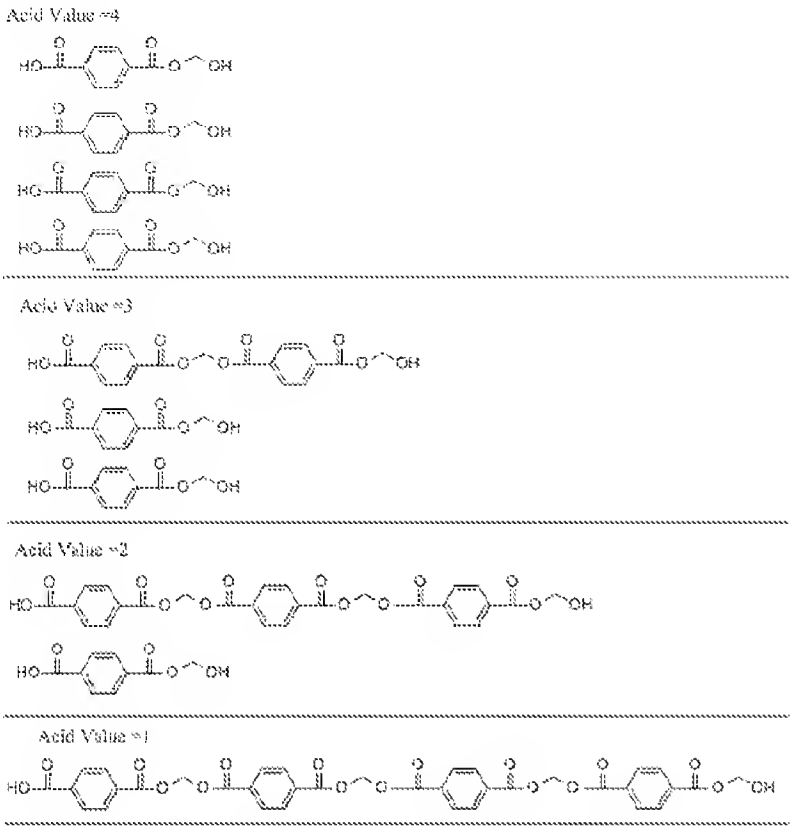
**A)** Applicant argues (pages 3-4, top half of page) that the acid values of *Sasaki* are higher than the claimed invention

In response *Sasaki* (col. 2, lines 20-31) does list the viscosity as being related to the carboxyl terminal group concentration [COOH] as being 90 x $[\eta]^{-0.4}$, and the

Examiner agrees with the values calculated in microequivalents of terminal acid (130 and 226 μeq/g, respectively, based on the listed viscosities of 0.4dl/g and 0.1 dl/g, respectively). For clarification of the record, *Sasaki* is making linear polyesters from terephthalic acid and ethylene glycol, as is the instant application; as such, carboxylic acids are only be present at the ends of the molecules in both cases, and this is referred to as "acid value".

What the Applicant fails to acknowledge is that the preferred range of acid value is under $20 \times [\eta]^{-0.4}$ (see col. 2, line 25). The examiner calculates this as an acid value under 29-50 μeq/g. In view of the substantially overlapping range presented by *Sasaki* (requiring that acid values must be under these amounts), it is necessary to examine the Examples of *Sasaki* to discern the true magnitude of the ranges presented.

*Sasaki* shows (Examples 2-3 and 6, as cited in the previous Action of January 22nd, 2010) oligomers with a starting acid value of 11 μeq/g (Table, col. 3-4). A person having ordinary skill in the art recognizes that the acid value decreases upon polymerization, as fewer carboxylic acids remain, since they are converted to esters via polycondensation (see diagram on next page for a clearer picture).




In measuring acid value, the carboxylic acids are of utmost interest. For argument's sake, in the above diagram, the top box with 4 ethylene terephthalte oligomers has an acid value of 4. Condensation of two of the oligomers reduces the acid value to 3 in the box immediately below (since one carboxylic acid is converted into an ester). The bottom box, wherein all oligomers are condensed, has an acid value of 1, since only one carboxylic acid (now a part of the growing polymer chain) is unesterified. Thus condensation of linear polyesters into a growing polymer necessarily leads to lower acid values in linear polyesters. This can be seen via the increase in intrinsic viscosity (see Table, col. 3-4), which is indicative that polymers are being formed (the oligomers begin to behave as polymers and macromolecules, and less like

small molecules or liquids after polymerization as evident by the increase in viscosity; see *Odian* reference of record).

**B)** Applicant alleges (pages 4-5) that the reasoning set forth in the action assumes both ends of the polymer are acid terminated.

In response this was not stated anywhere in the record, and only set forth as an explanatory example to illustrate the principle. See page 6, point "D" of previous action. Indeed, if the ends are not acid terminated, as applicant suggests, the acid value would be even lower than the ranges shown by *Sasaki*.

**C)** Applicant argues (pages 5-6) "during the polymerization of polyesters, side reactions such as thermolysis degradation by oxidation, and hydrolysis usually occur to give a lot of carboxylic acids".

In response, this is purely speculative and no evidence of this allegation is provided to support this allegation. On the other hand, *Sasaki* recognizes that thermal decomposition occurs at 330°C (*Sasaki* 2:64-3:1). The temperatures of the reactions in *Sasaki* are performed well below decomposition temperature (295°C; *Sasaki* all examples). A person having ordinary skill in the art recognizes from the *Sasaki* reference that too high of a temperature can lead to degradation, and would be motivated to control the temperature to induce polymerization while avoiding degradation.

**D)** In response to applicant's arguments (pages 6-7) that unexpected improvement in properties such as melt-processing crystallization, the fact that applicant has recognized another advantage which would flow naturally from following the

suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

In the instant case, the primary reference (*Suzuki*) is concerned with obtaining polyester/layered composites with physical characteristics including low warpage, surface appearance, etc. (¶ [0011]). Of primary importance, *Suzuki* recognizes that excellent processability into moldings is a result of the stabilization of the viscosity (¶ [0011]). The preferred viscosities of *Suzuki* (¶ [0034]) encompass the preferred ranges of *Sasaki* (*Sasaki* col. 2, lines 20-64).

*Sasaki* also recognizes the importance of viscosity in making molded articles (*Sasaki* col. 1, lines 15-43). A person having ordinary skill in the art, familiar with *Suzuki* and upon realizing the importance of viscosity in making molded polyester compositions, would look to *Sasaki's* method of controlling of the viscosity (which requires acid values preferably under 30) as a means of obtaining the desired viscosity for the molding of compositions.

**E)** Applicant argues (pages 7-8) that there is no relationship between the acid value and the intrinsic viscosity.

In response this relationship has been set forth above in point "A", by simple demonstration of a linear polyester system, and is recognized in *Sasaki*. The cited pages and lines do not show evidence to support that there is no relationship between these acid value and viscosity.

***Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL A. SALVITTI whose telephone number is (571)270-7341. The examiner can normally be reached on Monday-Thursday 8AM-7PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571) 272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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